Coverage evaluation Survey for PPI, Routine Immunization & Maternal Care in some districts of West Bengal & Assam by Indian Public Health Association

Conducted by

Indian Public Health Association HQ
110 Chittarajan Avenue, Kolkata 700073

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In Collaboration with

Dept of Health & Family Welfare

Government of West Bengal & Assam

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Association

Introduction

Immunization is an important cost effective Public Health weapon for disease control. It reduces both morbidity and mortality among the people. Diseases like Measles, Polio, Hepatitis B and some others can only be controlled through immunization. BCG vaccine was the first vaccine, which was introduced in National T.B. Control Programme. After the eradication of small pox, in 1978, Expanded Programme of Immunization came into existence to combat some specific killer diseases of children. On 19th November, 1985, Govt. of India launched Universal Immunization Programme (UIP) with the objectives to bring down the incidence of six killer diseases of the children as well as to eliminate Maternal & Neonatal tetanus by immunizing pregnant women with tetanus vaccine. It was envisaged to cover all infants, 1-2 years old children and pregnant women with the vaccines that fight against the occurrence of six killer diseases. During initial phase of this program, the coverage of UIP vaccines against these 6 killer diseases was not satisfactory, but it reached a very high level during 1990. In 1992, UIP was incorporated with CSSM program and later on with the RCH program in 1997. The coverage of infant and pregnant women with the UIP vaccines reached a very high level. Due to high coverage with UIP vaccines, IMR was reduced from 97 per 1000 L.B. in 1985 to less than 70 per 1000 L.B. recently.

Coverage evaluation surveys carried out during 2000 – 2001 revealed a wide gap between reported and evaluated coverage. The evaluated survey showed that only 53.8% children were fully immunized. This is very much concerning for all of us. The gain achieved so far might be reverted, if we do not sustain routine immunization coverage for UIP vaccines as per the target. Both morbidity and mortality due to common childhood illnesses might show an increase once again. *The main reasons identified for poor coverage was*

1. Large-scale attrition of manpower through transfers, retirement and replacement of new staff who have not been exposed to training on management of immunization program.
2. Community participation to facilitate conduction of routine immunization activities has been inadequate.
3. The equipment have become old and needs replacement.
4. Information, education and communication activities have not been up to the desired level.
5. Providers' fatigue: This might be due to repeated involvement of health workers in IPPI and PPI.

Recently Government of India felt that there is a need to strengthen routine immunization program. Therefore the immunization strengthening project is a major attempt by the Government of India with the World Bank assistance to reduce the gap between reported and evaluated coverage, so that, evaluated coverage reaches near target and sustain it. This program is a part and parcel of RCH program. Newer strategies of Polio eradication, Measles control and NNT elimination as well as disease surveillance required up gradation of managerial skill to empower the midlevel managers to implement the routine immunization program as per the need for the present time. Immunization strengthening project was updated it based on recent strategy.

Poliomyelitis was showing a declining trend for last few years. A sudden increase was observed in the year 2002, more so in some of the districts of the few states. Many hypothesis was postulated. It was very clear that the cases were occurring mostly among the children who were not given the routine doses of OPV and PPI coverage was not good in some of the pockets. The program managers, funding agencies and researchers, thought of the need for evaluation.

Reduction & prevention of maternal mortality is the goal of RCH program. It was observed that

care provided during Antenatal period very much lacks in quality needs improvement. Quality

is a Key word in the RCH program. There is a need to evaluate how far the quality of care is

provided following introduction of RCH program. Thus present study was conducted with

following broad objectives.

Objectives

1. To find out extent of coverage during the last three rounds of PPI & possible reasons for not accepting the PPI doses

2. To find out the extent of routine immunization coverage of Children

3. To find out the extent of care provided to mother during Antenatal period as well as coverage with Tetanus Toxoid vaccines

Methodology

A. Coverage Evaluation Survey Sampling Design

Sampling Universe: Five districts of West Bengal and one district of Assam. The districts in West Bengal were eg. Murshidabad, Malda, West Midnapur, Kolkata and 24 Parganas South and the district covered in Assam was Goalpara.

Coverage: Coverage of the target group was based on the objective of the study. Thus following categories of beneficiaries were covered for assessing PPI coverage, routine immunization coverage and maternal coverage.

PPI Coverage: Under five Children

Routine Immunization Coverage: 12 months to 23rd Months old children

Maternal Coverage: Mothers who gave birth to a child in last one year

Respondents: UNICEF is given the definition of respondents for different target group as mentioned subsequently and was followed during the survey.

PPI Coverage: The information will be obtained from households with under five children (e.g. children born between 21st Nov. 1997 and 20th Nov. 2002). Interview will be conducted with the principal caretaker of the eligible child.

Routine Immunization Coverage: The interviews will be conducted with the primary care takers of 12-23 months old children (e.g. born between 21st Nov. 2000 and 20th Nov. 2001).

- Maternal Care Coverage: **-** Women whose pregnancy of more than 28 weeks ended in between e.g. 21st Nov. 2001 and 20th Nov. 2002 will be eligible for the interviewed under Maternal Care.

Sampling Design

Multi-stage cluster sampling technique was used for this study. In each district, 40 clusters (15 clusters from Urban and 25 from Rural) was selected using PPS (Population Proportion to Size) sampling technique. The villages comprised the primary sampling unit in Rural areas whereas a ward formed the primary sampling unit in Urban areas.

Sample size of 384 was considered to be good enough to provide coverage estimate at 95% confidence level and 4% error margin for IPPI, at 80 percent coverage levels. Considering the design effect as 2, the required sample size estimated was 768 ≅ 800 which meant 20 sample per cluster.

In the similar way the calculation was made for RI and Maternal Care and sample size of 144 was good enough to provide coverage estimate at 95% confidence level and 8% error margin at 40% previous coverage level. Considering the design effect as 2, the required sample size was found to be 288 ≅ 320, which meant 8 sample per cluster.

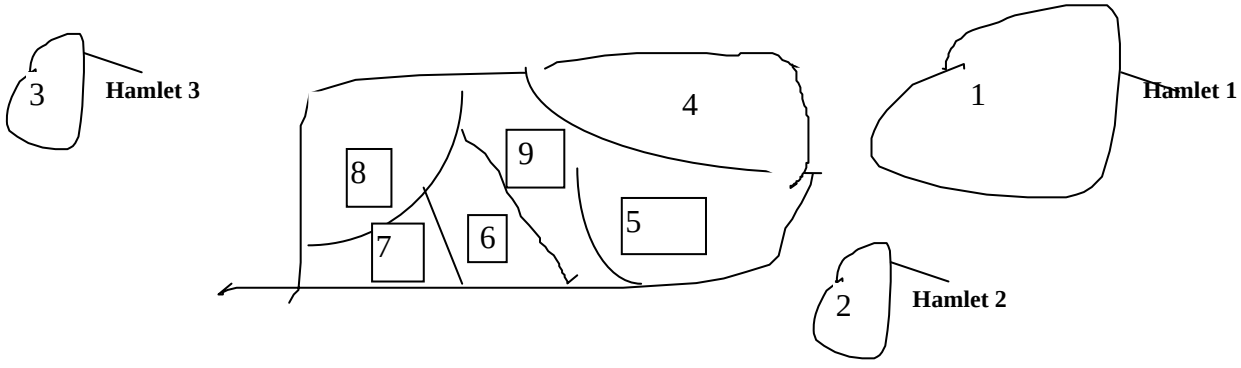
Selection of Cluster and households

Stage-I

Clusters were identified by using PPS technique from the list of villages for rural areas of the districts and list of wards for urban area of the same district. Due to non-availability of Census 2001, 1991 census list of villages and wards was used as the universe. Out of the 6 districts covered in West Bengal, cluster lists of five districts were identified by UNICEF and in case of Kolkata distict it was done by IPHA, as per the CSSM module on immunisation coverage, 1992.

Stage-II

Exhibit A : Showing segmentation and numbering of the segments for random selection



The identified clusters were divided into number of homogeneous pockets of socio-economic groups (minimum of 50 households) with the help of key informants (local knowledgeable persons). Hamlets were also be included as the pockets as shown below.

After completion of this mapping, 4 pockets were selected randomly by using currency note. With the help of key informants, one prominent person was identified from each of the selected segment. This house became the entry point of that segment. Interviewer had given an exclusive number starting from the house next to the prominent person's to each house using right hand rule. A random number was chosen using random from the currency note and the house was selected with that number. This house was the first house for the study in that pocket. If there was any under 5 children in that household, the primary caretaker will be interviewed regarding IPPI and moved to the next household in the right side till information for 5 children was gathered. Same procedure was repeated in all the 4 pockets to cover the sample size of 20 per cluster. Primary caretakers of two children in age group 12-23 months was interviewed for Routine Immunization so that, a total of 8 children was covered for Routine Immunization in each cluster. For maternal care component, women who had a pregnancy of at least 28 weeks, terminated during (e.g. 21st November 2001 to 20th November 2002), was interviewed. Two such women was interviewed in each of the selected pockets, leading to a total of 8 interviews in each cluster, in the similar way as Routine Immunization. In case in one pocket any of the respondents were not available, adjacent hamlet/s already not covered, was targeted.

Detail of the survey

Each team consisted of one Medical Officer and two Paramedical staff. Due to non-availability of properly trained Paramedical staff One M.O. and one Paramedical staff carried out the survey in almost all the clusters without compromising the quality. They were given repeated hands on experiences before engaging them in such activities. Rather it was observed that the quality was maintained in a better way as M.O. could meticulously supervise one rather than two staff, team understanding developed better while working in the same team. However time taken was slightly more. In some places two M.O.s also participated in the survey

Instruction given has been mentioned subsequently

One example was shown below. Only dates according to time of survey as per PPI dates of the concerned districts were changed**.**

PPI-CES Instructions

Similar instructions with change of date of birth for the target population was followed for each one of the district surveys. Above target dates are followed for Malda & Murshidabad based on the SNID in November. After January completion of IPPI in January the Survey in Kolkata & West Midnapur was completed while immediately after February round of IPPI, 24 Parganas South district was covered

Instruction

Form No	Information about	Target population	Age	Sample size/ cluster	Respondent
Form 2	PPI coverage	Children born between **9.01.98** and **8.01.03**	0 – 59 months (under-five)	20 (5 child x 4 pockets)	Mother / primary caretaker
Form 3	Routine Immunization	Children born between **9.01.01** and **8.01.02**	12-23 months (1- 2 yrs)	8 (2 child x 4 pockets)	Mother / primary caretaker
Form 4	Maternal care	Mothers who had their termination of pregnancy of duration >28 weeks, (i.e. live birth or stillbirth) between **9.01.02** and **8.01.03**	15 – 45 yrs	8 (2 mothers x 4 pockets)	herself

- 1. Selection of clusters – 40 clusters [25 rural + 15 urban] per district as selected by UNICEF.

2. Selection of families / HH for the study –

   i. After reaching the cluster, identify one local key-informant
   ii. With the help of the key informant, divide the cluster into number of homogenous pockets of socio-economic groups (minimum of 50 households) – make a list of 'paras' / hamlets.
   iii. Select 4 pockets randomly (using no. of currency notes.)
   iv. Study will be done in these 4 selected pockets.
   v. In each selected pocket, identify one prominent person. The house of the prominent person will be the entry point for each pocket.
   vi. Give a number, mentally, to each house starting from the house next to the prominent person's house using right hand rule.
   vii. Select a random number of 2 digits (using currency note). It should be less than the total number of HH in that area.
   viii. This is the number of the first house for the study in that pocket.
   ix. Continue study in consecutive houses in the right side till 5 under-5 children + 2 children of 12-23m. and 2 mother are covered.
   x. So, in a cluster (4 pockets) a total of 20 for PPI coverage, 8 for RI coverage and 8 for maternal coverage will be studied.

3. Data collection:

   i. Look for under-five children or eligible mother in the household (HH) visited
   ii. While studying PPI coverage (form-1), if you get children of age 12-23 m. – go for form-3 (RI). Similarly, if you get a mother who had termination of pregnancy of >28 wks duration, (i.e. mother of an infant / had a stillbirth within the last year) – include in form-4 (maternal care).
   iii. If you don't get 2 children 12-23 m. and 2 mothers while completing 5 PPI – search for the requisite no. of respondents.

iv. You may continue the survey in the adjacent pockets till you get the requisite nos. of respondents, provided the adjacent area is not one of the 4 selected areas.

4. Form filling
   i. In case of 'Boxes' – put relevant figures – follow coding instructions e.g. '88', '77', -
   ii. In case code numbers – encircle the response.
   iii. In case of response 'OTHERS' – write legibly in the available space below the codes.
   iv. **Do not leave any box / question blank** except when it has to be skipped. If needed write in blank spaces.
   v. Kindly complete the necessary codes on the top of every form.
   vi. **Consult your partner / supervisor in case of any difficulty**.
   vii. Senior / experienced MOs will be the team leader and will be responsible for collection & scrutiny of all the forms for a particular cluster before handing over them to the supervisor. 4 lots per cluster, each lot containing 3 forms, should be tagged together when submitting.
   viii. Submit your TA bills within 3 days of completing the survey to IPHA HQ along with all bills/vouchers. Mention where the cost has been borne by IPHA directly. TA will be given on actuals. IPHA recommends curtailment of avoidable travel expenses for saving money towards contribution for promoting health of mother and child.

Points to note regarding the forms:

FORM – 2

- Household no. – no. as assigned in the list as mentioned in 2(viii) above for each pocket.
- 2.04 – should be same as 1st. question and must be between 0 - 59 months
- 2.07 – consider upto 12th. standard
- 2.12 – consider routine OPV also.
- 2.13 – maximum possible may be 15/16 [4/5 routine+10 PPI]
- 2.15 – to be filled only if the child has missed any of the PPI rounds in the past [– remember age]
- 2.22 – include all children in the family who received PPI, may be also above 5 children.

FORM – 3

- Child line no. / Household no. / Child name / Address/door no. / Age – must tally with entries in form – 2, if the child is covered in the form 2 also.
- 3.08 – code '00' if below 1 month.
- 3.17 - include PPI doses.
- 3.29 – 1 BCG + 3 DPT + 3 OPV + 1 MEASLES – IF RECEIVED – CODE '1'
- 3.31 – foe children of age 16 m. and above – check 3.01.
- 3.32 / 3.33 / 3.34 – must tally with 2.07 / 2.31 / 2.32 of form – 2.

FORM – 4

- Household no./ address – should tally with entries in form – 2, if her child is covered in form 2.
- 4.07 – mention the name of the living child aged less than 12 m.
- 4.10 = 4.10a + 4.11
- 4.54 / 4.55 / 4.56 – must tally with 2.07 / 2.31 / 2.32 in form – 2, if her child is covered in form 2.

Bengali to English month conversion table

(First half of the Bengali month will be the earlier English month & second half will be the second one)

Bengali	English	Bengali	English
Baishakh	April – May	Kartik	October – November
Jaishthya	May – June	Agrahayan	November – December
Ashar	June – July	Poush	December – January
Shraban	July – August	Magh	January – February
Bhadra	August – September	Falgun	February – March
Ashwin	September – October	Chaitra	March - April

Murshidabad : RURAL

No.	Village	Block	Population (1991)
1	Hosenpur	Farakka	1257
2	Kankuria	Samserganj	20116
3	Bauripani	Suti II	3410
4	Mirzapur	Raghunathganj I	3938
5	Mahammadpur	Raghunathganj II	945
6	Arijpur	Sagardighi	664
7	Kaimegha	Lalgola	5761
8	Maheshpur	Bhagobangola I	638
9	Ichhabpur	Raninagar I	399
10	Majhardiar	Raninagar II	4411
11	Ramnagar	Murshidabad – Jiaganj	394
12	Bilbari	Nabagram	2912
13	Jatarpur	Khargram	2732
14	Srirampur	Burwan	877
15	Gopalnagar	Kandi	1407
16	Binodia	Bharatpur I	2957
17	Bhabta	Beldanga I	9446
18	Meliani	Beldanga I	667
19	Nazirpur	Beldanga	4657
20	Edrakpur	Nawda	8844
21	Siddhi Nandi	Hariharpara	1679
22	Kharsadanga	Berhampore	2901
23	Sripatipur	Domkal	977
24	Bagdanga	Domkal	1908
25	Nandalalpur	Jalangi	465

Clusters: URBAN

	Ward	Municipality	Population (1991)
26	Farakka Barage Township (NM)		21845
27	Ward 12	Dhulian	872
28	Serpur (NM)		5576
29	Aurangabad (NM)		25861
30	Ward 1	Jangipur	5828
31	Ward 10	Jangipur	5169
32	Sahajadpur (NM)		13610
33	Ward 4	Murshidabad	1699
34	Ward 4	Jiaganj Ajimganj	4170
35	Ward 2	Kandi	2210
36	Ward 12	Kandi	4581
37	Ward 1	Baharampur	8261
38	Ward 10	Baharampur	4607
39	Ward 21	Baharampur	3012
40	Ward 29	Baharampur	4446

Survey teams and respective clusters Baharampur

Sl No	Date	Team	Cluster no
1.	23.11.02	VII (TC + SSB + Tarun)	20
2.		X (BS + Kamal Mandal)	22
3.		XI (BB + Tushar Patra)	21
4.	24.11.02	VII (TC + SSB + Tarun)	7
5.		X (BS + Kamal Mandal)	39
6.		XI (BB + Tushar Patra)	40
7.		VIII (SPM + Manoj Dey)	23
8.		IX (AM + Ranjit Bhatt)	24
9.		I (NKH + Barun Ray)	18
10.	25.11.02	I (NKH + Barun Ray)	8
11.		IV (HP + Tapan Datta)	13
12.		VIIa (TC + Tushar Patra)	12
13.		VIIb (SSB + Tarun)	10
14.		VIII (SPM + Manoj Dey)	11
15.		IX (AM + Ranjit Bhatt)	9
16.		XII (AKS + Kamal Mandal)	16
17.	26.11.02	I (NKH + Barun Ray)	32
18.		IV (HP + Tapan Datta)	36
19.		VIIa (TC + Tushar Patra)	15
20.		VIIb (SSB + Tarun)	19
21.		VIII (SPM + Manoj Dey)	25
22.		IX (AM + Ranjit Bhatt)	38
23.		XII (AKS + Kamal Mandal)	14
24.	27.11.02	I (NKH + Barun Ray)	35
25.		VIIa (TC + Tushar Patra)	33
26.		VIII (SPM + SSB + Manoj Dey)	37
27.		XII (AKS + Kamal Mandal)	34

Survey teams and respective clusters at Murshidabad

Team No	Names of Surveyors (Surveyor code)	Cluster No
I	Dr N K Halder (51) Mr Barun K Ray (52)	1, 19, 32, 34, 35
II	Dr Subhashis Biswas (53) Mr R N Mandal (54)	2, 30
III	Dr Sudarshan Mandal (55) Mr Suprakash Hajra (56)	29, 31
IV	Dr Himadri Paul (57) Mr Tapan K Dutta (58)	4, 5, 6, 16, 36
V	Dr Ashok Mallik (59) Ms Madhuchhanda Deb (60)	26, 28
VI	Dr Nitai K Mandal (61) Mr Ranjit Das (62)	3, 27
VII	Dr T Chatterjee (63) Dr S S Basu (64) Mr Tarun (74) Mr Manoj Dey (75)	7, 8, 10, 12, 20, 33
VIII	Dr S P Mitra (65) Mr Suman Dey (66)	23, 24, 25, 37
IX	Dr A Munshi (67) Mr Ranjit Bhattacharya (68)	9, 11, 38
X	Dr Bhaswati Sengupta (69) Mr Kamal K Mandal (70)	22, 39
XI	Dr Bratati Banerjee (71) Mr Tushar Kanti Patra (72)	21, 40
XII	Dr Ashis Saha (73) Mr Kamal K Mandal	13, 14, 15
XIII	Dr Ashok Mallik Mr R N Mandal	17, 18

24 Parganas (South) – Rural

CLUSTER NO.	VILLAGE NAME	BLOCK	T_POPLN
1	CHAK KRISHNA NAGAR	MAHESTOLA	2711
2	KAMRA	BUDGE BUDGE – II	1362
3	DULAL PUR	BISHNUPUR – II	539
4	MAGURKHALI	THAKURPUKUR-METIABRUZ	863
5	SWASTAYAN GACHHI	BHANGAR – II	4388
6	NOAPARA	SONARPUR	2985
7	ATGHARA	BARUIPUR	643
8	BETBERIA	BARUIPUR	1130
9	SASTAKHALI	CANNING – II	1086
10	TIL KUMAR	BASANTI	5173
11	TARANAGARR	GOSABA	5504
12	GAMNGA NARAYANPUR	JAYNAGAR – I	184
13	KHAIYAMARA	JAYNAGAR – II	6614
14	SYAM NAGAR	KULTALI	2566
15	PADMA	MAGRA HAT – I	1188
16	GOT BARIA	MAGRA HAT – II	381
17	SATAL	FALTA	1350
18	KAMALPUR	DIAMOND HARBOUR – I	3096
19	BERANDARIBAGARIA	KULPI	7503
20	SHIBPUR (K)	MANDIRABAZAR	694
21	NALUA	MATHURAPUR - I	13555
22	KUMARAPARA	MATHURAPUR – II	12835
23	LAKSHMI PUR	PATHAR PRATIMA	2692
24	CHANDI PUR	KAK DWIP	6804
25	MRITYUNJOY NAGAR	SAGAR	2382

24 Parganas (South) – Urban

CLUSTER NO.	WARD	MUNICIPAL CORP.	T_POPLN
26	PANCHUR (NM)	CALCUTTA U.A.	77547
27	RAMPUR (OG)		2070
28	JALKHURA (NM)		8531
29	TENTULKHULI (OG)		3886
30	NANGI (NM)		52956
31	WARD 5	BUDGE BUDGE (M)	4522
32	KALIPUR (OG)		4624
33	PUJALI (NM)		10112
34	CHAK MANIK (OG)		2681
35	WARD 2	RAJPUR (M)	3863
36	WARD 13	RAJPUR (M)	3253
37	SRIPUR BAGHARGHOL (NM)		12937
38	WARD 3	BARUIPUR (M)	4966
39	CHAMPAHATI (NM)		7180
40	WARD 10	DIAMOND HARBOUR	2446

West Midnapore – Rural

CLUSTER NO.	VILLAGE NAME	T_POPLN	BLOCK
1	JAMGERIA	250	SALBANI
2	CHAK SAFI	2382	SABANG
3	SANTAI	867	PINGLA
4	AMLA DANGRI	551	NAYAGRAM
5	MAJURBELI	401	MOHANPUR
6	PAJAGUL	922	MIDNAPORE
7	HARINA	245	KHARAGPUR – II
8	BHUKBHUKISOL	247	KHARAGPUR – I
9	THAUR	697	KESHPUR
10	MOHANPUR	0	JHARGRAM
11	KASHI DANGA	381	GOPIBALLAVPUR - II
12	MARA DAHINI	131	GOPIBALLAVPUR – I
13	ALUI	1319	GHATAL
14	KADRA	1146	GARBETA – III
15	CHECHURIA	562	GARBETA – II
16	BISHAMJURI	0	GARBETA – I
17	DHENGA	1015	DEBRA
18	KHANJAPUR	3505	DASPUR – II
19	SULTAN NAGAR	601	DASPUR
20	SASTANAGAR	1064	DANTAN – I
21	GHOSHKIRA	131	CHANDRAKONA – II
22	BELPAHARI	1396	BINPUR - II
23	MADANMOHANPUR	5	BINPUR – I
24	BELDA	447	BANTATA
25	MANGALPUR	345	BANTATA

West Midnapore – Rural

CLUSTER NO.	WARD	T_POPLN	MUNICIPAL CORP.
26	WARD 8	1554	JHARGRAM (M)
27	WARD 1	6452	KHARAGPUR (M)
28	WARD 7	5890	KHARAGPUR (M)
29	WARD 15	4903	KHARAGPUR (M)
30	WARD 22	5698	KHARAGPUR (M)
31	WARD 28	7568	KHARAGPUR (M)
32	WARD 30	10596	KHARAGPUR (M)
33	KHARAGPUR RLY SETTLEMENT (NM)	84252	
34	WARD 1	6844	MEDINIPUR (M)
35	WARD 5	9491	MEDINIPUR (M)
36	WARD 12	5037	MEDINIPUR (M)
37	WARD 20	4840	MEDINIPUR (M)
38	AMLAGORA (NM)	15320	
39	WARD 6	1930	RAMJIBANPUR (M)
40	WARD 7	2657	GHATAL (M)

MALDA – Rural

VILLAGE NAME	BLOCK	T_POPLN
BHAGABANPUR	HARISHCHANDRAPUR – I	1005
UTTARHARISHCHANDRAPUR	HARISHCHANDRAPUR – I	10037
TALBHA KURIA	HARISHCHANDRAPUR – II	5062
SADHUHAT	CHANCHAL – I	46
KANUA	CHANCHAL – I	1974
MEGHDUMRA	CHANCHAL – II	2815
SAMBALPUR	RATUA –1	878
RATANPUR	RATUA –1	1128
PURBABALRAMPUR	RATUA –2	349
JIGIN	GAZOLE	1241
NIJ GRAM	GAZOLE	767
BANKATI	GAZOLE	208
SIMLA	BAMANGOLA	452
BARAIL	HABIBPUR	421
SANJIL	MALDHA (OLD)	789
MUCHIA	MALDHA (OLD)	3935
NARHATTA	ENGLISH BAZAR	764
NAO BARAR JAIGIR	MANIKCHAK	4118
NAWADA	MANIKCHAK	1372
ALIPUR	KALIA CHAK - I	10848
CHASPARA	KALIA CHAK - I	4256
DAKSHIN LAKSHMIPUR	KALIA CHAK - I	10492
BISHNUPROSAD	KALIA CHAK - II	3612
MOHONPURDUSOBICHA	KALIA CHAK - II	1254
DARIAPUR	KALIA CHAK - II	4251

MALDA – Urban

WARD	MUNICIPAL CORP.	T_POPLN
SAHAPUR (NM)		9373
WARD 7	OLD MALDA (M)	2433
WARD 9	OLD MALDA (M)	1377
MANGALBARI SAMUNDAI (NM)		24939
WARD 1	ENGLISH BAZAR (M)	5452
WARD 3	ENGLISH BAZAR (M)	8321
WARD 6	ENGLISH BAZAR (M)	4526
WARD 8	ENGLISH BAZAR (M)	6162
WARD 11	ENGLISH BAZAR (M)	6248
WARD 14	ENGLISH BAZAR (M)	4475
WARD 16	ENGLISH BAZAR (M)	5523
WARD 18	ENGLISH BAZAR (M)	5273
WARD 21	ENGLISH BAZAR (M)	5503
WARD 22	ENGLISH BAZAR (M)	9053
WARD 23	ENGLISH BAZAR (M)	7307

Barpeta – Rural

VILLAGE NAME	BLOCK	T_POPLN
BANDAR KHOWA	RUPASI	885
MAINAMATA PATHAR	GOBARDHANA	888
BALIPUR	GOBARDHANA	259
UTTAR ATHIABARI	GOBARDHANA	3619
SATRA BARALA	BARPETA	600
KAIMARI	BARPETA	829
CORIA CHATALA	CHENGA	1632
DHAKAIAPARA	BHAWANIPUR	2342
BETBARI GAON	BHAWANIPUR	827
TATI KUCHI	BARPETA	1122
KHANGRO	BARPETA	1818
BAR BHITHA	CHENGA	1863
DHARMAPUR N.C.	MANDIA	3035
SATRA KANARA N.C.	MANDIA	11669
MANDIA BARDALANI N.C.	MANDIA	5035
BAKSABADHA	MANDIA	528
BHERA	RUPASI	1043
BAGULAMARI	RUPASI	1595
SIKTATARY GAON	MANDIA	1219
PORABHORAL	BHAWANIPUR	1793
KALMATI PATHAR	JALAH	391
LUA SUR	BAJALI	462
SIMLA	JALAH	2052
TUPLE PANBARI	BAJALI	1041
BARSAHAN	BAJALI	896

Barpeta - Urban

WARD	MUNICIPAL CORP.	T_POPLN
WARD 1	BARPETA ROAD M.B.	4261
WARD 2	BARPETA ROAD M.B.	5976
WARD 3	BARPETA ROAD M.B.	4177
WARD 5	BARPETA ROAD M.B.	1718
WARD 7	BARPETA ROAD M.B.	3039
WARD 2	SORBHOG T.C.	2292
WARD 2	SARTHEBARI T.C.	1889
WARD 1	BARPETA M.B.	2827
WARD 4	BARPETA M.B.	1896
WARD 7	BARPETA M.B.	2168
WARD 10	BARPETA M.B.	2274
WARD 1	HOWLI T.C.	2833
WARD 3	HOWLI T.C.	3391
WARD 1	BOHARI C.T.	2381
WARD 2	PATHSALA T.C.	1421

Kolkata

CLUSTER NO.	WARD NO.	WARD POPUPLATION	CUM. POPN. AGAINST THAT WARD
1	3	53199	149242
2	6	47407	263380
3	10	33685	357588
4	14	49638	493297
5	17	24121	570288
6	22	20462	684656
7	26	34819	802457
8	29	46814	919881
9	32	45987	1030348
10	36	22914	1155811
11	40	24678	1260624
12	44	33284	1377656
13	50	18189	1497014
14	54	40331	1606727
15	57	44914	1730108
16	59	66649	1883375
17	61	34116	1959971
18	64	26880	2054691
19	66	79710	2216186
20	68	24100	2294046
21	71	33224	2399431
22	76	24412	2534075
23	78	58944	2636630
24	81	47081	2764376

25	85	31218	2887054
26	89	26476	2978664
27	93	56296	3128778
28	96	28936	3216195
29	100	29501	3333408
30	104	29428	3446392
31	108	38400	3575780
32	111	32163	3668299
33	114	31363	3772341
34	120	21880	3907244
35	123	30493	4002701
36	127	36574	4140624
37	130	26680	4238114
38	134	36625	4360728
39	138	34662	4469258
40	141	31165	4580364

Similarly this instruction with change of dates was given for West Midnapur, Kolkata, 24 Parganas South, Goalpara (ASSAM) and Malda though Malda had same target dates like Murshidabad.

Dates of survey

Survey was carried out in Murshidabad between 22nd Nov to 30th Nov 02.
Survey was carried out in Malda between 5th Dec Nov to 15th Dec 02.
Survey was carried out in Kolkata between 11th January to 222nd Jan 03.
Survey was carried out in West Midnapur between 22nd January to 2nd Feb 03.
Survey was carried out in 24 parganas South between 12th Feb to 28th Feb 03.
Survey was carried out in Assam between 22nd April to 30th April 03.

Observation (Table 1 to 49) and Fig.

Discussion

A cross-sectional non-interventional survey was carried out in 5 districts of West Bengal and one district of Assam to find out extent of coverage during IPPI, routine immunization & quality of care provided to pregnant women.

A. Discussion on PPI Coverage

In the recent rounds of IPPI, more than 95% coverage was observed in all the surveyed districts excepting in 24 Parganas South where coverage was around 92% (Table 1). During immediate past & past rounds, (computation done after excluding the *not applicable groups separately)*, PPI coverage was consistent in W. Midnapur (97.5% & 98.11%), Kolkata (95.67% & 95.49%) & Malda (95.38% & 94.38%) while in 24 Parganas (South) & Murshidabad coverages were slightly less i.e. 93.23% & 93.32 % as well as 92.5% & 92.89 % respectively for immediate past & past rounds of PPI (Fig 1). Outbreak of Poliomyelitis might be expected anytime in these two areas if PPI coverage along with routine immunization services could not be geared up.

Situation at the Goalpara district is further needed attention, as the coverage in the recent round of February 03 as well as in the past two rounds were 90.13%, 88.13%, and 91.04% respectively. It may be pertinent to mention that Goalpara district of Assam has not reported any cases of Poliomyelitis recently. Report of this survey gave a warning that the district had potentiality of an outbreak of Poliomyelitis if coverage for both routine immunization and IPPI doses does not show any improvement (Table 1a). There is no scope for being complacent with 'No report of poliomyelitis case'.

In all these districts booths were the main site for IPPI dose though 1/3rd to 1/4th of the beneficiaries received immunization at home also (Table 2 & 2a).

During evaluation of routine immunization coverage, more than 85% OPV3 coverage was observed only in West Midnapur (90%) & Kolkata (85.94%). The coverage with OPV3 doses was poor in 24 Parganas South (76.25%) followed by Malda (74.06%) while it was very poor (52.19%) in Murshidabad (Table 18). Goalpara district had further poor coverage of OPV 3 dose i.e. 44.69% (Table 18a).

Comparing with studies in earlier years in some nearby districts, present level of coverage of PPI appeared to be better in all the districts. National trends evaluated in 1998-99 showed also improvement from the coverage level of 85.5% in 1995-96 to 96.1% in 1998-99. Possibly, this could be due to inclusion of house-to-house immunization during IPPI. Chandigarh, Delhi, Gujarat, Haryana & West Bengal had shown appreciable improvement in PPI coverage during that period, as reported in same study (G.O.I., 1998-99). But in the Goalpara district of Assam PPI coverage was much less than above national data stated above. However occurrence of large number of cases of Poliomyelitis in Murshidabad & Birbhum districts in the later part of last years as well as, very recently in South 24 Parganas, is a concerning issue. Few other districts of West Bengal also reported cases. In almost all such cases, the status of routine immunization coverage was poor. South 24 Parganas has 76.25% OPV3 coverage level while poorest coverage (52.19%) was observed in Murshidabad (Table18) as well as in Goalpara (44.69%) district of Assam (Table 18a), there was no case report from goalpara district. The message that IPPI is a supplementary program to routine immunization might not been understood by the community in these districts, possibly. IEC must emphasize this issue, immediately.

It was also observed (Table 3) that around 10% of the beneficiaries were not administered any PPI dose in the either of the rounds, in 24 Parganas (south) & Murshidabad districts, from where maximum number of Poliomyelitis cases were reported. Malda might not have reported large number of cases but it did have potentiality to report cases, if appropriate action is not taken at the earliest. Some of the common factors of transmission co-existed like lass than 85% routine coverage of OPV 3. As well as 10.13% children were not covered with PPI dose in the either of the rounds.

Main reason for not being covering with PPI doses in either of the rounds, in all the districts excepting Kolkata was “Not aware of the need for additional doses” (Table 4). In Kolkata “child sick” was the main reason (Table 4). Earlier in 1998-99, the study revealed that ‘non awareness of date & time’, ‘non-awareness of the need’’, ‘sick child’ and ‘no one to fetch the child’ were the main reasons for not accepting immunization (G.O.I., 1998-99). In Goalpara district, 19.3% (Table 3a) under five children were not administered with any dose of PPI in either of the rounds. This

was much higher than the poorly covered districts of W. Bengal. Therefore one should not be complacent when there is no case of Poliomyelitis" in the district, as epidemiological situation coupled with poor coverage is favorable for transmission of the disease, existed in Goalpara district of Assam is situated close to the border of Bangladesh. Fear/rumor (29.41%) & Child Sick (28.76%) were the two main reasons for not giving PPI dose (Table 4a) in these rounds.

More than 90% of the PPI doses were given through booths in West Midnapur & Kolkata. It might be due to better level of awareness & better literacy in these places. These might have brought the people directly to the booths. Further West Midnapur is a border district as a result of which better services might have been offered there. At 24 paraganas south (table 2) & goalpara district (table 2a) around 75% of PPI doses were given through booths. Coverage through booths were 69.67% & 61.22% in Malda & Murshidabad respectively (table2). In Kolkata, Maldah, South 24 Parganas & West Midnapur districts booths were situated within walking distance, as reported by more than 84% to 90% respondents. Percentage was slightly less (72.25%) in Mursidabad (Table 6) & further less (61.75%) in Goalpara district where attempt should made by the health authorities to bring the booths more close to the beneficiaries i.e. within walking distance (Table 6a). Studies during 1998-99 also revealed booths were situated within walking distance in 82% state clusters & 82.5 % in high-risk clusters while better percentages were observed in city clusters (94.4%). Similar observations were noticed in Kolkata & other studied districts. At Murshidabad 5.5% booths were situated at far off places while at 24 Parganas South & West Midnapur, corresponding percentages were 3.63 % & 2.5%. PPI booths beyond 3 Km were located in 2.2% state clusters as revealed in earlier studies. In the present study 0.38% respondents reported in Kolkata city that their booths were situated far away from their residence. Principal investigators at Kolkata noticed similar responses during 2000-2001, when he found that even ¼ to ½ km distance were considered as far off places by the caregivers in Kolkata.

But on the contrary around 20 to 38 % doses were administered through house-to-house visits in other three districts. It was also observed that during PPI rounds

in earlier occasions, there were 3-4% inadequacies, which were covered by house-to-house survey (G.O.I., 1998-1995).

Health workers was main source of information of PPI in South 24 Parganas (67.13%), Malda (58.25%) & West Midnapur (54%). In these districts Miking also contributed largely in disseminating information on PPI i.e. 30.75%, 33.63% & 50% respectively. At Murshidabad Miking (61.25%) was the main source of information followed by the Health workers (50.63%) while in Kolkata, TV was the main source (67.13 %) followed by Miking (30.38%). Around 20 to 30 % information was disseminated by T.V in other districts also while role of radio for disseminating information on IPPI rounds was to the extent of 12-17 % in these districts. Around 21-27% information on PPI was disseminated by ICDS functionaries in 4 rural districts. Contribution of Health & ICDS functionaries in disseminating information on PPI was very poor in Kolkata. This could be due to the fact that economically better off group's could not be reached by these group of functionaries (Table 5). Earlier studies in 1998-99 (G.O.I.) also showed that Health workers were the main source of information followed by ICDS functionaries, TV, relatives & friends while in the present study, too, health workers were found to be the main source of information excepting in Kolkata, while TV/ radio, miking, ICDS functionaries also contributed substantially. Miking (56.38%) followed by health workers (42.13%), TV (27.88%) & Anganwadi workers(24.75%) were the main source of information for PPI at Goalpara district of Assam (Table 5a).

Knowledge of needs for 'routine immunization' among the respondents of underfive children (Table 7) was around 71 % to 74.5% in all the districts except Malda where it was further low (65.88%). It was observed to be much low (29.5%) at Goalpara district of Assam (table 7a). The awareness generation on need for routine immunization in the community should be geared up otherwise it will be difficult to sustain and strengthen routine immunization services, more so for Goalpara district of Assam.

It was observed that 61.25%, 54.75% 44.88%, 43.88% & 35.38 % had no knowledge about the symptoms of Poliomyelitis in Malda, Murshidabad, 24

Parganas, West Midnapur & Kolkata respectively (Table 8). At Goalpara district of Assam 42.88% did not know about the symptoms of Poliomylitis (Table 8a). Amongst those who had some knowledge of symptoms of Poliomyelitis, they knew 'weakness of limbs' as predominant symptoms. Knowledge of other symptoms was very poor.

Government hospital (Table 9 & 9a), as referral centers for poliomyelitis cases, was known to Kolkata respondents to the extent of 60.25% followed by Goalpara (55.75%), West Midnapore (45.38%), Murshidabad (39.75%), 24 Parganas south (36.88%). This knowledge on referral was very poor at Malda district (28.00%). Concerned district authority should use appropriate methods & media to bridge up the gap in knowledge.

Vitamin A administration (Table 10 & 10a), to children of greater than 9 months age group, was highest in border district of West Midnapur (79.57%) & lowest in Murshidabad (48.87 %). Vitamin A dose was administered 'once with Measles Vaccine' to the extent of 36.87% in 24 Parganas South and 50.67% in Kolkata. It was administered 2 to 3 times in all the districts with coverage varying between 46.31% to 34.93% (Table 11). It was given mostly at six-monthly interval (Table 12). However, 29.41% to 49.37% caregivers were unaware about the frequency of administration of Vitamin A in these districts. Only 25.07% children above 9 months of age were given Vitamin A dose at Goalpara district, mostly (70.93%) at the time of Measles immunization and at six monthly intervals (Table 10a, 11a & 12a).

Very few under five children received IFA small tablets. It was 12.03%, 9.83%, 8.35%, 7.31% & 6.66% in West Midnapur, Kolkata, 24 Parganas South, Murshidabad & Malda respectively (Table 15). At Goalpara district only 3.25% were given IFA small tablets (15a).

Hinduism was the main religion of the studied population excepting Murshidabad & Goalpara where Mohammedan religion predominated & general caste was more in number than the other caste. More than 40 % scheduled caste population was seen in 24 Parganas South (48.92%), Murshidabad (47.71%) & Malda (42 .75%). Scheduled tribe had highest population (21.85%) at West Midnapur district (Table

13 & 14). At Goalpara district 59.88% population belonged to the Mohammedan religion group, scheduled caste population was only 24.16% and Scheduled tribe population was 19.8% (Table 13a & 14a)

B. Discussion on Routine Immunization Coverage

The knowledge of immunisation appeared to be better when respondents had 12-23 months age group children on the centrary to 0-59 months age group children . The highest (94.06%) was observed in West Midnapur Border district while lowest was (80.63%) in Murshidabad. At Goalapra district 89.06% caregivers of the 12-23 months age group beneficiaries had knowledge on routine immunisation (Table 16a). when compared with the findings of table 7a, a wide difference was observed for which no explanation could be given.

In regard to frequency of occurrence of session (Table 17) the varied responses were observed. The maximum number of weekly sessions were held in Malda (45.94%) followed by Border district of West Midnapur (45.0%), 24 Parganas south (40.0%), Kolkata (37.81%) & Murshidabad (31.44%). The occurrence of monthly sessions were more in 24 Parganas South (32.19%) followed by West Midnapur (31.56%), Malda (22.5%), Kolkata (16.88%) & Murshidabad (12.5%). Majority of the caregivers did not know about this and their ignorance was highest in Murshidabad (34.38%) & lowest in Border district of West Midnapur (11.56%). At Goalpara district of Assam Weekly sessions were most common (74.69%) followed by monthly sessions (8.75%). Not a single daily session was reported from goalpara district for providing immunization. This might be one of the factors for low coverage of routine immunization services.

At West Midnapur district, the high coverage of BCG (98.13%), DPT3 (90.31%) & OPV3 (90%) & Measles (84.06%) vaccine were observed. More than 85% coverage of these vaccines was also seen in Kolkata except for measles vaccination which was 76.56%. The poorest coverage of these vaccines were observed in Murshidabad district where DPT3 coverage, OPV3 coverage, BCG and Measles coverage were 49.38%, 52.19%, 75.31% & 42.81% respectively. Other districts fell in between this coverage. In the border district of West Midnapur 82.50% children were covered with all the vaccines under UIP program. An

improvement of coverage with all UIP vaccines were observed in comparison to earlier Coverage Evaluation Survey in 1994 in some districts like West Midnapur, Kolkata & 24 Parganas(S) (Fig 2-5). Presently Kolkata, Malda, 24 Parganas South districts had 71.56%, 65.31% & 61.88% coverage with all the UIP vaccines respectively. The poorest coverage with all the UIP vaccine (41.25%) was observed in Murshidabad district (Table 18). It might be pertinent to mention that 34.38% caregivers (table 17), did not know about the occurrence of session in and around their area at Murshidabad. Contribution of Government hospitals, PHCs & Sub-centres in providing routine immunization services was observed to be better. Government hospital contributed maximum in Kolkata while Subcentres followed by PHC & Government hospital contributed more in other rural districts. Around 17 % private clinic also participated in routine immunisation services in Kolkata (Table 19).

Coverage of UIP vaccines at Goalpara district of Assam appeared to be poor in comparison to most of the districts surveyed in W. Bengal. Poor accessibility, political situation of the state, lack of manpower might be the reasons for this. Coverage of BCG, DPT 3, OPV 3 & Measles vaccines was 63.44%, 39.69%, 44.69% & 37.81% respectively while fully immunized children was only 27.19% (Table 18a). Government health facilities provided maximum immunization services with a total of 81.88% (Table 19a). Subcentres, Govt /Municipality hospitals & PHCs provided UIP vaccines to the extent of 37.5%, 23.44% & 20.94% respectively (Table 19a).

Most of the coverage evaluation or multi indicator surveys showed an improvement in Coverage of UIP vaccines in many districts. Although data was not available for all these districts except one or two district /s, yet it was obvious that fully immunized status of Goalpara & Murshidabad district was very poor & concerning. If this continues to occur, then even with high PPI coverage, the poliomyelitis would continue to exist & other Vaccine Preventable Diseases might take the shape of an outbreak in future. It might be pertinent to mention that UIP vaccine coverage, as observed during NFHS2 survey in 1998-99, was 49.6%, 31.3% & 34.5% for urban areas, rural areas & overall status respectively with comparatively poor coverage of DPT3 (52.11%), OPV3 (55.4%) & measles

(41.0%) coverage (NFHS2 1998-99). Present survey report highlighted better coverage in all the districts except for Goalpara & Murshidabad in comparison to NFHS2 data.

Sterilization, before giving immunization was not observed by the majorities (33.13% to 49.69%). However boiling in saucepan for 20 minutes was observed by 29.69%, 25%, 15.94%, 14.06% & 11.88% in border districts of West Midnapur, Malda, Murshidabad, 24 Parganas South & Kolkata respectively (Table 20). Highest use of disposable syringe & needles was observed in Kolkata (26.88%), followed by Maldah 17.19%, West Midnapur 11.56%, 24 Parganas South (9.38%) & Murshidabad 7.81%. At Goalpara district of Assam 70.94% did not have any idea about Sterilization and only 25.94% had some ideas about disposable syringes (Table 20a). The findings on use of disposables syringes at goalpara was close to the findings of Kolkata.

"Not aware of the needs of all vaccination" was the main reasons for not being fully immunized as was observed in Kolkata (54.79%) 24 Parganas (51.64%), Malda (46.85%) and Murshidabad (46.43%) as well as in Goalpara (47.9%). Around 10 to 18 % reported "fear/rumor of side effect" as the cause for not being fully immunised in these districts. At Goalpara district 20.28% did not accept UIP vaccines due apprehensions of side effects & rumor (Table 20 & 20a). it was felt that the reasons for not being immunized, was related so poor IEC activities on routine immunisation seeing and therefor needs urgent attention of IEC division.

Only 52.63% & 44.62% eligible children were given booster doses in West Midnapur & Kolkata.). It was observed that in Malda, 24 Parganas South & Murshidabad district coverage with booster dose was 29.61%, 27.27% and 22.40% respectively (Table 22). Like other districts of West Bengal, Goalpara (Table 22a), also, had poor coverage with booster dose (21.4%). The booster dose is very important for prevention diseases like Diphtheria, Whooping Cough & Tetanus at comparatively older age group. Here again, role of IEC should be emphasized.

Highest number of caregivers (87.50%) could show immunization cards at border district of Midnapur (Table 26). This was followed by Kolkata (77.5%), Malda (76.88%) & 24 Parganas South (75.94%). The poorest finding was observed from

Goalpara district where card could be shown only by 33.75% of the caregivers (Table 26a). Murshidabad district of West Bengal (60.63%) had further poor availability of cards (table 26).

Around 12% respondents from West Midnapur & Murshidabad district mentioned that immunization clinics were situated at far off places. Otherwise in most of the districts these were situated either within walking distances or not at very far off places (Table 25). However it was interesting to note that amongst these two districts with more or less same findings on location of immunization clinic, vaccine coverage were different. West Midnapur had highest coverage & Murshidabad had lowest coverage. This could be due to difference in literacy status (Table 23) and or might be due to some religious taboos (Table 24) or manpower availability related administration issue. At Goalpara 51.88% sessions were held within walking distance (Table 25a) while in case of 39.69% sessions were not situated at far off places. If the places of sessions could be situated close to the beneficiaries', utilization of routine immunization services would have been better. As revealed, the situation at Goalpara is conducive for vaccination in regard to distance of the session. It is not clear why coverage was so low. However at Goalpara district rate of illiteracy was 43.75%, majorities of the beneficiaries were Muslim by religion and around 45% were SC or ST by caste (Table 23a & 24a).

C. Discussion on Maternal Care

Data on maternal care was gathered through a pre-designed and pre-tested proforma from studied districts. In regard to receipt of antenatal care it was observed that, out of 320 respondents, 98.13%, 96.56%, 93.75%, 86.25% & 84.06% received at least one antenatal check-up for W. Midnapur, Kolkata, 24 Parganas South, Malda & Murshidabad respectively (Table 27). Many of them in all the studied areas received 1st antenatal check-up during 4-6 months (Table 28). In the districts of Kolkata, W. Midnapur, 24 Parganas South, Malda, Murshidabad beneficiaries received at least 3 times antenatal check-ups to the extent of 270 (87.38%) in Kolkata, 249 (79.3%) in W.Midnapur, 217 (72.33%) in South 24 Parganas, 189 (68.48%) in Malda & 154 (57.25%) in Murshidabad. At Goalpara 64.06% pregnant women received at least one antenatal check up – most of them (51.71%) within 4-6 months (Table 27a & 28a). Among all 320

pregnant women studied, only 105 (32.19%) attended 3 or more antenatal visits which was very poor in comparison to the districts of West Bengal.

NFHS-2 data revealed that 57% of the pregnant women received at least 3 & more than 3 antenatal check-ups, which meant 82.6% in urban area & 51.3% in rural area. In the urban area 58.4% women had first check-up during first trimester while 47.3% women in the rural area had first check-up during 2nd trimester (NFHS-2 West Bengal page 18, Table 8.4). The present studies in West Bengal districts revealed a better coverage while Goalpara district of Assam had a poor coverage when number of Antenatal check ups were compared with NFHS-2 data of West Bengal. As per RCH program all the districts should have achieved at least 100% coverage of 3 Antenatal Check ups.

Majority of the studied women had first pregnancy at the age of less than 18 yrs in Murshidabad & Malda to the extent of 46.25% while at W. Midnapur district, 24 Parganas South, Kolkata had first pregnancy between 18-20 yrs of age to the extent of 49.38%, 44.05% & 42.19% respectively (Table 29). Approximately, more than 2/3rd pregnant women had first conception before 20 years while around 1/3rd had first conception before 18 years of age at Goalpara district of Assam (Table 29a).

Study also revealed that, majority had equal to or less than 3 children in studied areas. Kolkata & 24 Parganas South followed by Midnapur, Murshidabad & Malda districts had 2 children amongst 79.38%, 71.88%, 44.06%, 37.5% & 37.19% respectively (Table 30). In the district of Goalpara 63.75% studied women had < = 2 children (Table 30a) which appeared to be better than later three districts of W. Bengal. The reason could not be understood until & unless one has exact knowledge on underfive mortality of Goalpara district.

NFHS-2 data showed that 36% of the women aged between 15-19 years were already married although proportion of women, who marry young was declining rapidly with the majority of women in West Bengal marry before reaching the legal minimum age of 18 yrs. Present study corroborated with the findings NFHS 2 in almost all the districts.

At West Midnapur 46% of the antenatal check-ups were provided by ANM & LHV while at Murshidabad, Malda & 24 Parganas South, antenatal check-ups were provided by this group of health personnel was much higher. At Murshidabad and 24 Parganas South, ANM and Nurse at Hospital or PHN provided around 50% antenatal check ups. Malda it was further more 77.53%. In Kolkata it was only 13%. However, Government Doctor's contribution in providing antenatal check-ups was much higher (69.26%) in Kolkata. This was followed by 24 Parganas South (38.67%), West Midnapur (35.03%), Murshidabad (22.68%) & Malda (17.03%). Contribution of private doctors was highest (Table 31) in Malda (51.09%) followed by Murshidabad (36.8%), West Midnapur (36.8%), 24 Parganas South (27%) & Kolkata (22.01%). Government doctors (44.93%) followed by the ANM (29.52%) & Private doctors (18.5%) were the main providers of Antenatal care at Goalpara (Table 31a).

Physical examination was done in 95.79%, 79.62%, 76%, 73.91% & 71.37% in Kolkata, West Midnapur, South 24 Prganas, Malda & Murshidabad respectively. In the similar way B.P recording was done in 89%, 78.34%, 75.67%, 71.38% & 71% respectively. Weight recording was done in 91.26%, 79.71%, 76.33%, 75.80% & 72.49% in Kolkata, Malda, 24 Parganas South, West Midnapur & Murshidabad respectively. It was observed from the study that performance of physical examination, B.P. & weight recordings were highest in Kolkata. Only in case of Malda district weight recording was performed better than physical examination & B.P recording (Table 32).

Amongst those, who attended for Antenatal care at Goalpara, Physical examination was done, BP & weight was recorded to the extent of 75.12%, 67.8% & 71.71% respectively (Table 32a). Around one fourth of these examinations were done for 2 to 3 times (Table 33a).

It appeared from Table 33 that frequencies of measuring B.P, recording of weight & abdominal examination were better in West Midnapur and poor in Murshidabad district. Frequency of measuring these components of antenatal care is considered as a part of quality of antenatal care.

It was observed that more than 90% pregnant women received either two doses of T. Toxoid or Boosters in all the studied districts of West Bengal. However 3 doses of Injection T. Toxoid were administered to the extent of 10%-13% (Table 34). This was corroborated by the findings of administration of injecting during pregnancy (Table 35) except in Kolkata where injections administered appeared to be double (20.63%) while 3rd dose of T. Toxoid administered was 11.67%. This might be due to the fact that injections other than Tetanus Toxoid were also administered in Kolkata. Iron injection might be one possibility. Study carried out by NFHS-2 showed also slightly higher coverage in urban areas (88%) than in the rural areas (81%) by TT_2 or Boosters. About 93% of pregnant mothers, in Kolkata, received 2 or more doses of Injection T. Toxoid. These findings corroborated with the findings of the present study, of course, with a better achievement in coverage. Goalpara district of Assam had TT_2 & booster coverage of only 80.94% (Table 35a). This was slightly less than the coverage of other studied districts. At Goalpara district, it coverage with TT_2 or booster is not improved, possibilities of occurrence of neonatal tetanus or maternal tetanus could not be ruled out completely.

Around 1/3rd of the T. Toxoid was administered from the sub-centres. Private hospitals also contributed to the extent of 18.75% in South 24 Parganas to 31.88% in Malda. Contribution of Govt. Hospitals & Municipality Hospitals in Malda was only 13.13% followed by Murshidabad 18.75%. In other areas around 25% T. Toxoid were administered from Govt. Hospitals (Table 36). In Assam district Subcentre (39.69%) followed by Government & Municipal hospitals (19.06%), PHC (9.06%) & Private Hosp (9.38%) were the places for Tetanus Toxoid administration (Table 36a). It was concerning to note that, still 10-12% TT_3 (three doses of tetanus toxoid) were administered. Some old doctors, traditional practitioners, chemist still believes that three doses of tetanus toxoid is required for protection.

Iron & Folic Acid (IFA) tablets were distributed to 80% of the pregnant women in Border district of W.Midnapur, 76.56% in Malda, 67.81% in Murshidabad, 65.94% in 24 Parganas South & 59.69% in Kolkata. However, distribution of Iron syrup was highest in Kolkata (18.44%) & lowest at Murshidabad (5.63%) followed by Malda (6.25%). On an average 10% of the pregnant women were given iron syrup

in W. Midnapur & 24 Parganas South. One hundred IFA tablets were supplied only to 36.73% to 46.87% pregnant women in the studied districts (table 37). Thus consumption of more than 90 tablets also appeared to be poor. IFA tablet distribution at Goalpara was better than (76.56%) some of the districts of West Bengal (Table 37a). Further supply of more than 90 tablets of IFA was also more in Goalpara. But the non-consumption rate was higher (17.14%) at Goalpara. Around 8% to 9% pregnant women in 24 Parganas South & Murshidabad districts respectively did not consume a single tablet of iron & folic acid (Table 37 & 37a).

Government sources particularly subcentres in the districts & government hospitals in Kolkata were the main sources of the supply of these tablets. Private clinics contributed to the extent of 13% in Kolkata, Malda & Murshidabad (Table 38). Similarly in Assam district, the government institutions played the main role in supply of IFA tablets (Table 38a).

NFHS data, in the state West Bengal as a whole, showed that coverage with iron & folic acid (IFA) tablets increased substantially from 57% in NFHS-1 to 72% in NFHS-2. They also found that IFA coverage was lower in rural areas (68%) than in urban areas (87%). The present studies in different districts of W. Bengal more or less corroborated with the findings of NFHS-2, including the urban Kolkata. In Kolkata receipt of IFA tablets might be only 59.69% but receipt of Liquid iron was highest (18.44%). Thus in total, figure came to 78% for Kolkata. National RCH program recommended consumption of at least 100 IFA tablets prophylactically & 200 tablets when pregnant women suffer from anaemia. The present study report on IFA tablet consumption might make someone more complacent about the IFA tablet. But mere receipt of the IFA tablets does not mean its consumption. It was observed in the study that consumption of tablets appeared to be poor, while much less than 50 % of the pregnant women were given 100 tablets. NFHS-2 reported 79% pregnant women received IFA tablets for 3 months & 80 % of them consumed the IFA supplements given to them. Present study findings on the supply & consumption did not corroborate with the findings of NFHS-2. This might be due to:

- The supply of IFA in the state & district was not consistent in all these years

- Health workers, supervisors & health administrators might not be well sensitized regarding the impact on health of pregnant mothers due to non-consumption of IFA tablet.

It should be remembered that anaemia in pregnant women contributes substantially in the occurrence of low birth weight, child morbidity and mortality as well as maternal morbidity and mortality. All these could be prevented by consumption of IFA tablets to a great extent, when these tablets were supplied free of cost by the government.

Difficulty in vision during night at the time of pregnancy was reported by 12.5%, 10%, 8.13%, 5.94% & 5.94% pregnant women in Malda, Murshidabad, West Midnapur, 24 Parganas South & Kolkata respectively (Table 39) while in Goalpara it was only 6.25% (Table 39a). NFHS-2 data showed that overall prevalence of night blindness in W. Bengal state was 11.6 %. In the rural area it was 13.1 % while in the urban area it was 5 %. The studied districts showed slightly less prevalence of night blindness. Consumption of green leafy vegetables could have prevented their deficiency. Household food security survey in Kolkata & 24 Parganas South showed better consumption of green leafy vegetables (Ray S K. 1997). In Goalpara district availability of iron rich food might be better. Malda & Murshidabad district is a high yielding districts for mango, which contain vit. A to a great extent. This fruit might not be available to poorer section of the community due to high cost. But it has to explored whether the people had knowledge that mango contains vit. A.

Majority of the pregnant women (59% to 92 %) knew that “Swelling of the face & feet” was the main complication during pregnancy. Many of them experienced it also (Table 40). But at the same time many pregnant women were neither aware of the complications nor experienced any such complications during pregnancy. It was true also for Goalpara where 43.13% had no knowledge of complications during pregnancy and 65.94% did not experience any complications (Table 40a). In Kolkata 73.75% pregnant women said that they experienced no complication. Earlier study revealed that around 27.2% and 15.4% pregnant women experienced swellings of legs, body or face during pregnancy in rural & urban areas

respectively. Similarly excessive fatigue was reported by 50.6% & 42.8% from rural & urban areas respectively (NFHS-2, 98-99).

Majority of the pregnant women stayed in their “in-laws’ house” in all the districts (Table 41 & 41a).

Highest numbers of home deliveries were conducted at Goalpara (72.81%) followed by Murshidabad (57.19%), Malda (54.69%), 24 Parganas South (53.13%) while in Border district of W. Midnapur it was only 35.94% & at Kolkata it was 10.31%. It might be mentioned in this context that W. Midnapur district with the imput of Border district project, might have improved upon institutional deliveries substantially (Table 42 & Table 42a).

Considering the ”health personnel assisted in deliveries”, Untrained TBA contributed highest. It was 48.44% at Goalpara followed by Malda (34.69%), 24 Parganas South (25.94%) & Murshidabad (25.31%). West Midnapur border district had only 10.94% deliveries conducted by untrained TBA while in Kolkata it was 6.56%. Friends & relatives (also untrained) contributed 13.13%, 9.38%, 7.19%, 5.94%, 4.38% & 1.56% in 24 Pargans South, W. Midnapur, Murshidabad, Maldah, Goalpara & Kolkata respectively (Table 43 & 43a). NFHS-2 highlighted that only 40 % deliveries in W. Bengal was conducted in the institution, 46% in their own home & 13% in their parents’ homes. Present studies revealed that more than 40% deliveries were conducted at the institutional level in 24 Parganas South (47%), Malda (46%) & Murshidabad district (42%) respectively while in Kolkata & W.Midnapur, corresponding percentages for institutional deliveries were 90% & 63% (Table 43). Higher rates of home deliveries in some districts, which were being assisted by UTBA should be a concerning issue in the context of national RCH program, more so in Goalpara district. Health authorities should take actions for encouraging institutional deliveries as well as training of TBA for reduction of MMR and also morbidity..

NFHS-2 also highlighted that 44 % births were conducted by the health professional, which also included 35% by doctors & 9 % by ANM, nurse, midwife or traditional birth attendants. Around 26% deliveries were attended by friends, relatives & other persons. The proportion of deliveries attended by a health

professional increased from 34% in NFHS-1 to 44% in NFHS-2. In the present studies higher rates were observed in all the districts if trained TBA is included. Otherwise Kolkata, W. Midnapur showed a higher rate followed by 24 Parganas South in comparison to NFHS-2 data.

Excepting Murshidabad (72.19%), in all other districts majority of the women did not face any complications to the extent of 80 to 87% (Table 44 & 44a). Around 8 to 12% faced complications like prolonged labor in all the studied districts. In Kolkata, around 5% women faced such complications (Table 44). NFHS-2 reported massive vaginal bleeding for 13% of births & high fever during post partum period for 8% births. Urban rural differences in complications were small.

Leaving aside Kolkata, more than 85% deliveries were normal. Deliveries by caesarian section was highest in Kolkata 24.06% followed by W. Midnapur 13.75%, 24 parganas South 12.81%, Malda 10.63%, Murshidabad 8.13% & Goalpara (5.63%). Only around 0.63% to 1.88% deliveries were forcep deliveries in these districts (Table 45 & 45a).

In the state of W. Bengal based on the mother's report, it was found out that 10% of children born in past three years were delivered by caesarian section. Caesarian section deliveries were substantially higher in urban areas of W. Bengal as per NFHS-2. This finding in the urban areas corroborated with findings of Kolkata urban districts while the reports of other rural districts showed, slightly higher proportion of caesarian section deliveries in comparison to NFHS 2.

Use of Disposable Delivery Kit (DDK), in case of home deliveries, was very poor in the studied districts. It was as low as 3% in Kolkata to as high as 18% in Murshidabad (Table 46). At Goalpara 13.73% pregnant women used DDK (Table 46a). Supply & use of DDK during home deliveries is very essential for prevention infection with special reference to Neonatal and Maternal Tetanus.

Status of Postnatal care presented in Table 47. Amongst the postnatal cases, 54.69% lactating women in Murshidabad districts did not receive any postnatal care. Similarly 47% women in Malda & 24 Parganas south did not receive any

postnatal care while at W. Midnapur 33.44% did not receive any postnatal care. The situation appeared to be better in Kolkata where only 18.13%% did not receive postnatal care. Majority of the women received this care only within 24 hrs after deliveries. In the studied district of Assam 71.25% did not receive any postnatal care (Table 47a) and only 23.44% received it within 24hours.This needed substantial improvement. Provision of quality of care is the important commitment in the RCH program. RCH program recommended at least three postnatal visits (1998-99). NFHS-2 followed one third of non-institutional births by a check up within 2 months of delivery. Among these births followed by a check up, (almost one fourth) 23% of check ups took place within 2 days & one third took place within one week of delivery. These findings suggested for special attention to improve postnatal care. Members & family members should be explained about the importance of postnatal visits.

Breast-feeding was started within 2 hrs mostly in the Border district of W.Midnapur i.e 46%. In other districts, finding was one third only. However more than 80 % women offered breast milk within 24 hrs of delivery, with the exception of Murshidabad & Goalpara districts, where the findings showed 62% & 60% respectively initiated breast feeding within 24 hours (Table 48 & 48a). Only very few neonate did not breast-fed. Colostrum was offered to almost 90% of the infants excepting in Murshidabad where one-fourth children were not offered colostrum at birth. Mothers/ caregivers of Goalpara district gave colostrums to 52.56% of their neonates (Table 49 & 49a). It might be pertinent to mention that most of the children who offered colostrum had offered it after giving pre-lactal feed like candy water & honey. Many also squeezed out the first milk initially as a custom. Immediately after that they continue to offer yellowish thick milk (colostrum) within 24 hours.

Percentage initiatd breast-feeding within one hour of birth was 22.3% in urban area & 25.6% in rural area while in Kolkata it was 22.1% as per NFHS-2 1998-99. But the present study showed higher percentages in regard to initiation of breast-feeding within 2 hrs. It was reported that 69% mothers squeezed out first milk (NFHS-2 1998-99). In the present study those who initiated breast-feeding within 24 hrs, some of them ritually squeezed out first milk, but continued to suck

yellowish thick milk immediately thereafter. Large number of training programs was conducted in these districts and IEC activities were also taken up during the past few years. This might have resulted in some improvements.

In conclusion, it might be said that gearing up IEC activities, training, monitoring and supervision could be considered as key component to further improve and sustain. PPI coverage, routine Immunisation coverage & coverage of pregnant lactating women. Reaching the unreached should also be an important activity.

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